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Rainwater: Can You Catch It?

An Informational Pamphlet On Rainwater Harvesting

Rainwater Harvesting

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You Can Catch It!

While many people may not realize it, A few inches of annual rainfall can be a valuable resource. Perhaps you've watched rainwater pour into street gutters and wished for a way to hold on to some of it. There is a way you can turn rainfall into a liquid asset, a roof that is 1000 square feet in area can yield as much as 600 gallons of water from just 1 inch of rain. There are many people in our area who are concerned with our current water resources.

Some of these people are:

- ***Gardeners who prefer untreated water for healthier plants and yards.***
- ***Rural residents who need a reliable alternative to well water for drinking and household use.***
- ***City residents who are concerned with rising water rates, and who enjoy a green landscape.***
- ***Conservationists who strive for efficient use of water resources.***

WHY HARVEST RAINWATER?

Rainwater harvesting saves money for you and for your community. Collecting and using rainwater means you aren't buying potable water to use on your landscape. Rainwater harvesting helps to reduce the need for treated water and water storage facilities, which helps keep the cost of the public water supply low.

What is harvested rainwater? Harvested rainwater is water collected from the roofs of buildings and used to satisfy indoor needs, outdoor needs or both.

How does rainwater harvesting work? It can be as simple as capturing water in a rain barrel or complex enough to involve designers, builders and thousands of dollars. A system can be very basic and be assembled with common household materials by individuals with a basic understanding of plumbing and construction skills.

What do I need to consider?

Function. Consider what you want your system to do. Using a rainwater harvesting system for drinking water and other direct human purposes requires long-term, proper operation and maintenance to ensure the health of friends and family. Using it for irrigation requires less concern for filtering. Since the largest need for irrigation water in our area occurs during the time of lowest rainfall and highest temperature, a rainwater collection system designed to meet this need will have to capture water prior to the summer irrigation season.

Reliability. Rainfall comes in cycles, from droughts to floods. The design of the water collection system with a good understanding of the basic principles, is very important. You'll consider the type of roofing material to catch the rainfall, the size of and the extent of gutters and downspouts, and the size, placement and material of the storage tank. If rainwater is your only source of water, you also may need to use extensive conservation practices.

BASIC COMPONENTS OF A RAINWATER HARVESTING SYSTEM

Rainwater harvesting systems come in all shapes and sizes, from a simple container under a downspout to potable systems with thousands of gallons of storage with complex filters. All rainwater systems share basic components.

Catchment area

Your catchment area will likely be the roof of your house. Metal roofs work best, and any roof will work for a non-potable system. Gutters, downspouts, or a pathway of PVC pipe make up the delivery system.

Leaf screens and roofwashers

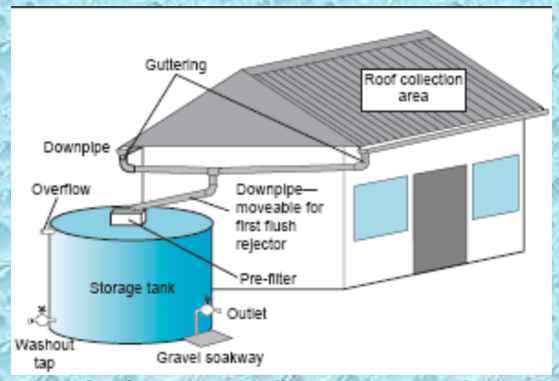
You can use screens or mesh to keep leaves, twigs, and animals out of your gutters, downspouts, and barrel or tank. A roofwasher diverts the first flush of rainwater before it enters the tank.

Storage tank

A tank may be a rain barrel or a cistern made of various materials such as wood, masonry, concrete, metal, fiberglass, or polyethylene.

System to deliver the stored water to your landscape

The system can be as simple as rainbarrel with a spigot at the base, or more advanced to fit irrigation needs. You may be able to take advantage of gravity only, but most systems benefit from a pump for delivery of stored water to your landscape.



Example of a rainwater collection system, and components. Figure courtesy of LCRA.

How much water can you harvest?

To calculate amount of rainwater you can collect from the roof of your house or other surface follow this calculation.
Length x width of surface =_____roof footprint (square feet).
Multiply by 0.6 (gallons per square foot of area)
Multiply by the efficiency of the system (this is usually about .85)
Multiply the total by average amount of rainfall per month/year.
Example: I own a house that has a roof area of 1000 sqft. The average rainfall for Moscow is 23 inches per year. The efficiency of my system is 85%. Calculation:
1000sqft x 0.6g/sqft x .85 x 23 in/yr
=11730 gal/yr

Cost Estimates

Free: A clean container placed under the roof's drip line or at a downspout to collect water for potted plants or gardens.

Up to $100: A plastic rain barrel will collect up to 75 gallons and will include a tap for connecting a garden hose. You could spend $175 for a 4-by-4- foot black tank that holds 300 gallons.

Safety note: Use screens to cover all openings to prevent mosquitoes from breeding. Keeping them covered will also help prevent algae growth. Mosquito dunks, available at garden supply centers, are floating disks containing Bacillus thuringiensis to protect standing water against mosquitoes. The dunks are safe for fish, birds and mammals.

Up to $2,000: A 3,000-gallon polyethylene tank could collect rainwater for the landscape and, for this amount, you could also install new rain gutters, solid PVC downspouts, a roof washer or other filter, and a pump for drip irrigation or sprinkler systems.

Up to $20,000: With this budget you could provide an entire household with water, or splurge on tank materials such as stone or wood. A household probably needs a minimum of 20,000 gallons for storage. A system for potable water also will require a pump, filters and purification system.

Note: For areas that have limited space, there are many types of the flexible tanks that could be installed under decks and/or in crawl spaces.

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HarvestH2O.Com
The online rainwater water harvesting community

The Texas Manual On Rainwater Harvesting. Third Edition.
Online: http://www.twdb.state.tx.us/publications/reports/